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CLAIMS:

What is claimed is:

- 5 1. A method for acquiring a lock on a system resource
in a computer system, comprising:
determining if a lock is uncontested using an
atomic operation; and
acquiring the lock if the lock is uncontested.
- 10 2. The method of claim 1, wherein the atomic operation
is a cross-system atomic operation.
3. The method of claim 1, wherein the atomic operation
15 is a remote atomic operation provided by a system area
network.
4. The method of claim 1, wherein the atomic operation
is one of a fetch-and-replace atomic operation and a
20 compare-and-swap atomic operation.
5. The method of claim 1, wherein determining if a lock
is uncontested includes using a lock table having an
entry for each available lock.
- 25 6. The method of claim 5, wherein the lock table is
distributed over a plurality of nodes in a network.
7. The method of claim 5, wherein the lock table
30 resides with a single node in a network.

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8. The method of claim 6, wherein a hash on a lock name of a lock is used to identify which node of the plurality of nodes holds a portion of the lock table in which an entry for the lock is located.

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9. The method of claim 1, wherein determining if a lock is uncontested comprises:

creating a lock message having a lock address and a parameter that is to be compared with or added to a value
10 in a memory location corresponding to the lock address based on the atomic operation that is performed by the lock message.

10. The method of claim 9, wherein determining if a lock
15 is uncontested further comprises:

posting the lock message to a Send Queue; and
examining results of the atomic operation to
determine if the lock is contested.

20 11. The method of claim 1, further comprising:
initiating a fairness mechanism for performing lock acquisition if the lock is determined to be contested.

12. A computer program product in a computer readable
25 medium for acquiring a lock on a system resource in a computer system, comprising:

first instructions for determining if a lock is uncontested using an atomic operation; and
second instructions for acquiring the lock if the
30 lock is uncontested.

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13. The computer program product of claim 12, wherein the atomic operation is a cross-system atomic operation.

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18. The computer program product of claim 16, wherein the lock table resides with a single node in a network.

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instructions for creating a lock message having a lock address and a parameter that is to be compared with or added to a value in a memory location corresponding to the lock address based on the atomic operation that is
5 performed by the lock message.

21. The computer program product of claim 20, wherein the first instructions for determining if a lock is uncontested further comprises:

10 instructions for posting the lock message to a Send Queue; and

instructions for examining results of the atomic operation to determine if the lock is contested.

15 22. The computer program product of claim 12, further comprising:

third instructions for initiating a fairness mechanism for performing lock acquisition if the lock is determined to be contested.

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23. An apparatus for acquiring a lock on a system resource in a computer system, comprising:

means for determining if a lock is uncontested using an atomic operation; and

25 means for acquiring the lock if the lock is uncontested.

24. The apparatus of claim 23, wherein the atomic operation is a cross-system atomic operation.

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25. The apparatus of claim 23, wherein the atomic operation is a remote atomic operation provided by a system area network.

- 5 26. The apparatus of claim 23, wherein the atomic operation is one of a fetch-and-replace atomic operation and a compare-and-swap atomic operation.

- 10 27. The apparatus of claim 23, wherein the means for determining if a lock is uncontested includes means for using a lock table having an entry for each available lock.

- 15 28. The apparatus of claim 27, wherein the lock table is distributed over a plurality of nodes in a network.

29. The apparatus of claim 27, wherein the lock table resides with a single node in a network.

- 20 30. The apparatus of claim 28, wherein a hash on a lock name of a lock is used to identify which node of the plurality of nodes holds a portion of the lock table in which an entry for the lock is located.

- 25 31. The apparatus of claim 23, wherein the means for determining if a lock is uncontested comprises:

means for creating a lock message having a lock address and a parameter that is to be compared with or added to a value in a memory location corresponding to
30 the lock address based on the atomic operation that is performed by the lock message.

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5 means for examining results of the atomic operation
to determine if the lock is contested.

33. The apparatus of claim 23, further comprising:
means for initiating a fairness mechanism for
10 performing lock acquisition if the lock is determined to
be contested.